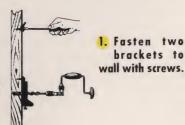
Now you can give Sunshine Warmith to that added-room, playroom or your entire home with ...



THERMOSTATIC CONTROL

#### CHROMALOX installation and specifications

#### EASY, 3-STEP INSTALLATION



RWP-RWP-RWP-

RWPT-110B

RWPT-210B



2. Connect power supply in panel's built-in terminal box.



3. Slide panel on wall brackets and fasten with screws.

Chromalox Radiant Panels are completely factory-assembled and can be installed with the tools found in any tool-box. Mounting actually consists of fastening the two small wall brackets flush with wall, plaster, tile, wood or any other surface. Drill ¾" hole to

RWPT-110C

RWPT-210C

admit power supply. Fasten power leads to built-in terminal box. Hang panel on top bracket, swing in bottom against lower bracket and fasten with two screws. Job is completed . . . the easiest installation of any heater on the market today.

3412

3412

contain built-in

thermostat and

CATALOG NUMBER						
& Brass or Style	Gray & Chrome Color Style	PRICE	VOLTS (a.c.)	WATTS	вти	CONTROLS
-110B -210B -215B	RWP-110C RWP-210C RWP-215C	\$49.50 49.50 59.50	115-120 230-240 230-240	1000 1000 1500	3412 3412 5118	Wall-switch or wall-mounted thermostat recommended
						PWPT Models

1000

1000

RWPT-215B RWPT-215C 69.50 230-240 1500 5118 separate built-in on-off switch.

A 230-240 volt supply is recommended due to the electrical load of other appliances such as washers, dryers, dishwashers, stoves, ironers, electric blankets, etc. Most all homes are completely

115-120

230-240

SPECIFICATIONS AND PRICES

Panel dimensions on all models—23" high x 28" wide x 3" deep. Shipping weight:  $22\frac{1}{2}$  pounds

wired for the heavier electrical load of modern living conveniences.

59.50

59.50

WARRANTY—Chromalox Radiant Wall Panels are unconditionally guaranteed against defects in material and workmanship. Warranted for long-life performance when installed in accordance with simple instructions enclosed with each unit.

#### EDWIN L. WIEGAND COMPANY

0 orld's Livery manufacturers of electric heating engineers

7500 Thomas Blvd.

Pittsburgh 8, Pa.

OTHER CHROMALOX PRODUCTS

FOR HOME HEATING

NOW... a completely assembled and painted electric baseboard heater

### installs in minutes!

- **COMPLETELY ASSEMBLED** 
  - BAKED-ON ENAMEL FINISH
    - SIMPLIFIED SINGLE-CONNECTION WIRING
      - SENSITIVE BUILT-IN THERMOSTAT

TYPE BRT

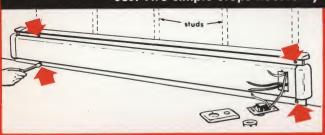
**Automatic Electric** 

#### BASEBOARD HEATERS

Here's a compact pre-assembled electric baseboard that requires but one electrical connection to both energize and automatically control. Standard lengths and heating outputs can be chosen to provide the exact heat required for any size room . . . from supplemental heating for the chilly bathroom to complete home, motel or commercial building requirements.

A new and thoroughly tested quality product by Chromalox, this automatic baseboard performs in the same effective way as separate baseboard and wall-mounted thermostat. May be mounted in minutes because the thermostat is built-in and unit is completly assembled and painted. Four screws hold it to wall . . . one connection to thermostat puts it in operation for long years of maintenance-free life.

#### Just two simple steps necessary to install BRT baseboard heaters







Make electrical connection to thermostat and replace cover



Manufactured by

IEGAND COMPANY

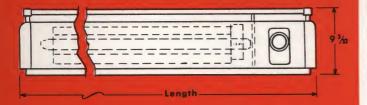
7500 Thomas Boulevard

Pittsburgh 8, Pa.

#### Type BRT with built-in thermostat

#### CONSTRUCTION

Heavy-gauge steel is used on back and front panels, baffle and permanently welded-on end caps. All exterior surfaces painted with heat and scuff-resistant Beach-White baked-on enamel with Cocoa-Brown and Gold thermostat and name plate trim. Separate cell holds line voltage thermostat with sensing element projecting on room side, (mounted under control knob) where it accurately controls room temperature within 2° F. Standard terminal box is spot welded to back panel with thermostat serving as cover plate, thus permitting direct wiring thru back, side or bottom of box to thermostat and heater terminals. Heat is generated by rugged, industrial type strip heater, all metal-enclosed against moisture, breakage or shock and held on floating mounts along with heat directing baffle.



#### **OPERATION**

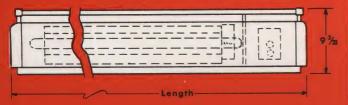
Available models for operation on 120 or 240 volts, with or without built-in line voltage thermostats. Single units are usually mounted directly under outside windows where built-in thermostat continually samples temperature of room air from room-side of baseboard heater. Thermostat keeps temperature within 2° F. of room setting, through a control range from 55° to 85° F. Control knob may be turned down to cold position for complete shutdown. Two or more baseboard units without built-in thermostat may be controlled by one single unit with thermostat, or one wall mounted thermostat may be used to control several BR type units. One WR-61 thermostat will control loads to as much as 2600 watts on 120 volts and 5200 watts on 240 volts.

Catalog No.	List Price	Length	Volts	Watts
BRT-250	\$55.00	30"	120 or 240	500
BRT-58	\$60.00	60"	120 or 240	800
BRT-81	\$70.00	100"	120 or 240	1250

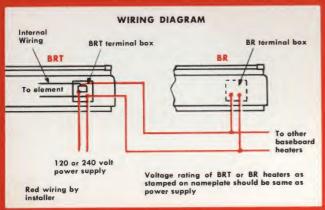
Listed by Underwriters' Laboratories, Inc.

#### Type BR Matching Baseboard Heaters

Type BR matching units (but without thermostat) may be connected to a type BRT (thermostat controlled master unit) to control up to 5200 total watts in same room. Same lengths, voltages and wattages as Type BRT.



HOW TO INTERCONNECT WHEN USING MORE THAN ONE BASE-BOARD PER ROOM . . . AS UNDER TWO WINDOWS

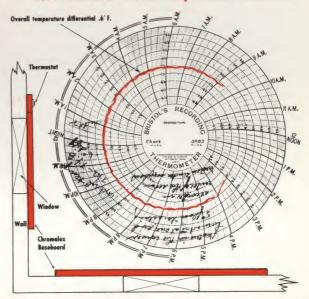




Catalog No.	List Price	Length	Volts	Watts
BR-250	\$39.00	30"	120 or 240	500
BR-58	\$41.50	60"	120 or 240	800
BR-81	\$53.50	100"	120 or 240	1250

Listed by Underwriters' Laboratories, Inc.

#### Test indicates close temperature control



In a test installation with a WR-61 thermostat in a Chromalox Baseboard, the room temperature was maintained over a 15-hour period within an overall differential of 2° F., as measured by a recording thermostat in the center of test room, at a point 4 feet above the floor. Actual test recording shown above.

L-1238 (R8-50) Printed in U.S.A.



## SAMPLE ARCHITECTURAL SPECIFICATIONS CHROMALOX ELECTRIC COMFORT HEATING, VENTILATING AND NATURAL COOLING SYSTEM FOR SCHOOLS



These specifications and accompanying plans are intended to fully describe a complete electric heating, ventilating and natural cooling system designed to maintain rooms at 70° F. when outside air temperature is °F., and to be complete in every respect.

Entire system must be in strict accordance with the laws of , rules and regulations of the National Board of Fire Underwriters and any applicable local regulations. Any necessary permits for this work shall be obtained by and paid for by this contractor.

#### MATERIALS & WORKMANSHIP:

All materials shall be the best of their respective kinds, as manufactured by the company mentioned. Bids upon equipment of other manufacturers are permitted if accompanied by full heating and control layout and description of materials and equipment, including any increase or reduction in price from material listed for the base bid. Such substitutions must have the written approval of the Architect.

The work shall be executed by qualified employees with the maximum speed consistent with good workmanship, so as not to delay other contractors. All equipment shall be installed in accordance with Architectapproved shop drawings and manufacturer's recommendations.

Equipment shall be adequately protected at all times until completion of contract.

CENTRAL DAY-NIGHT CLOCK CONTROL (for use with Chromalox ELECTRIC Classroom Unit Ventilator Temperature Controls -- See Diagram, page 8)

Heating system shall be divided into zones for control purposes as shown on the plans. Day-Night

controls for each zone shall be suitably mounted on panel board located in electric equipment room. (Optional -- located in principal's office) For Day-Night control diagrams and equipment, see drawings. All zone Day-Night controls shall be furnished and installed by the electric heating contractor.

A manually positioned Clock Override Switch for each zone shall determine whether that zone shall operate on one of three cycles of operation as follows:

- Position 1: Labelled "NIGHT OCCUPIED" shall permit maintaining daytime temperature and ventilation in the zone at any time desired, such as would occur when building is to be occupied at night. The zone shall then remain at "day" temperature until such time as the position switch is manually returned to the "clock" position. (Optional -- The zone shall then remain at "day" temperature until such time as a timer returns the circuit to "clock" position.)
- Position 2: Labelled "CLOCK" shall permit time clock to operate the zone in accordance with the desired hours set for "day" operation and "night" operation on clock dial. Clock shall be seven day program type with provision for automatically maintained lowered "night" temperature continuously on Saturday and Sunday.
- Position 3: Labelled "DAY AND HOLIDAY UNOCCUPIED" shall permit zone to be reduced to lowered "night" temperature at any time, and control shall then be by zone night thermostat until such time as the position switch is manually returned to the "clock" position.

Each zone shall have its own time clock operated Day-Nite circuit as shown on the plans. During "day" operation, clock shall operate the Day-Night control circuit (and thus the classroom unit ventilator temperature controls) directly and continuously. During "night" operation, clock shall operate the Day-Night control circuit (and thus the classroom unit ventilator temperature controls) intermittently through the Zone Night Setback Thermostat. No zone power circuit contactors shall be necessary, except as may be used in conjunction with the temperature control of Auditorium Type Unit Ventilators.

Daytime temperature control of unit heaters, cabinet convectors, and other electric comfort heating equipment (other than unit ventilators and flanking Draft Barrier baseboard) shall be maintained by an integrally mounted line voltage thermostat, by a wall mounted line voltage thermostat or by a wall mounted low voltage thermostat with transformer relay as shown on the plans. Each of these thermostats shall remain at its "'day" setting continuously.

Nite setback temperature of this equipment shall be attained by the time clock operated Day-Night control circuit which operates an integrally mounted power relay in each equipment item. During "night" operation the clock shall operate the Day-Night control circuit intermittently through the Zone Night Setback Thermostat. Thus night setback temperature will be maintained, since the relay in each equipment item will interrupt the heating power supply in accordance with the Zone Night Setback Thermostat. During "day" operation the Zone Nite Setback Thermostat of the Day-Night control circuit shall be by-passed, thus the relay in each equipment item will permit uninterrupted power flow, and "day" temperatures will be maintained by the various line voltage thermostats.

Day-Night Controls shall be standard items as manufactured by firms noted on plans.

#### CLASSROOM TYPE UNIT VENTILATORS:

Furnish and install complete, where shown on plans, the number and size of unit ventilators indicated. Units shall be standard as produced by the Edwin L. Wiegand Co. of Pittsburgh, Pa. under the trade name "CHROMALOX". Air capacities shown shall be based on the ASHAE Standard air method of measuring. Chromalox type MA Units shall be used with electric or electronic moom temperature controls. (Alternate -- Chromalox type VA Units shall be used with pneumatic room temperature controls.)

Unit ventilators shall meet the applicable ventilation requirements of the State Ventilation Code and shall be installed in accordance with manufacturer's instructions and shop drawings as approved by Architect. Copies shall be furnished to contractor for Masonry work.

Unit ventilators shall be designed and constructed to introduce a predetermined minimum quantity of out-door air to the room during all periods of occupancy with up to 100% from outdoors when required to prevent overheating, and recirculate room air entirely during heating-up periods and when room is unoccupied.

Each unit ventilator shall incorporate the features listed hereafter.

#### A. CABINET

All components shall be enclosed in a casing constructed of No. 18 gauge furniture steel. Casing shall include enclosure at end for motor, room temperature controls, thermostats, and switches. All exposed corners and edges of the casing shall be rounded to a 1" minimum radius. Rubber back gaskets shall be used to prevent air leakage.

All steel parts of the Unit Ventilator shall be subjected to a phosphating, bonderizing, or equal treatment to improve the finish bond and to resist corrosion. After this surface treatment, the external casing shall be finished with a hard-baked finish in one of two standard colors selected by the Architect.

#### **B. ELECTRIC HEATING BANKS**

The individual heating elements shall be mounted in a heavy formed steel frame. Each element shall be of the tubular finned metal sheath type, having highest quality coiled resistor wire embedded in the refractory material within a tubular metal sheath and with a hydraulically re-pressed cross section. The individual heating element shall have furnace brazed helical coiled fins for rapid heat transfer, and the entire element shall be furnished in corrosion resistant finish.

Automatic reset snap-action type thermal protection shall be furnished on individual elements for protection in the event of overheating from any cause.

Each heating bank assembly shall be designed and wired for Volt, three-phase power supply with single element switching, and shall be located within the unit ventilator so that recirculated air only is drawn through the assembly.

#### C. MOTOR

Each unit ventilator shall be complete with three speed 1000, 750 and 620 RPM capacitor type motor, direct connected to multi-fan shaft through flexible Neoprene coupling and shall be installed in the ventilated end compartment of the unit outside of the discharge air stream. Motor shall have built-in thermal overload protection of automatic reset type. The rated air-delivery of fan shall be based on the 750 RPM motor speed. A key operated "Low" - "Normal" - "Super-Cooling" switch accessible through top of unit shall be provided to operate motor and fans at 1000 RPM to delivery 130% of rated outdoor air capacity for additional natural cooling and ventilating when desired.

The motor shall be for 115 volt, 60 cycle operation and shall be connected single phase to the electric heating bank power supply through a step-down transformer. This will insure fan operation whenever the electric heating bank is energized.

#### D. FANS

Fans shall be of the draw-through modular type, of aluminum construction, balanced dynamically and statically, quiet operating, forward curve, double inlet, centrifugal type, mounted on 1 1/4" diameter hollow rigid shaft and isolated by Neoprene mountings.

Fans shall have uniform tip speed and outlet velocity.

#### E. DAMPERS

Unit shall have one-piece minimum and/or main air dampers which shall close airtight against Silicone rubber impregnated glass tape seals. They shall not require lubrication. Dampers shall operate as specified under "Classroom Temperature Controls" specified below.

#### F. WIRING

Power supply and Day-Nite control system wiring to unit ventilators shall be as shown on plans. Conduits shall be brought to the floor under right end compartment of unit. Wiring to the unit ventilator terminal board shall be done by the electrical contractor. Note that the unit ventilator electric (or electronic) temperature control system (or the pneumatic control system damper EP switch within the unit) shall operate from a separate 120 volt, single-phase, 60 cycle electrical circuit.

#### (Optional)

A key operated Day-Night Clock Override Switch accessible from the Unit Ventilator exterior shall be provided to permit warmup and day time operation of any individual classroom during the night setback period. This switch will require a third wire in the Day-Night control circuit as shown on the plans. (See Diagram, page 8.)

#### G. FILTERS (Optional)

Each unit ventilator shall be equipped with one piece roll type renewable media filter of 1" thickness with hinged aluminum filter frame. The filter shall be so located that the entire filter area is in use at all times, and so both room and outdoor air pass through it. Furnish enough additional roll type renewable filter media for one complete change of all unit ventilator filters, which shall be left in building for later replacement by operating personnel.

#### (Alternate)

Each unit ventilator shall be equipped with a permanent cleanable type metal filter of 1" thickness. The filter shall be so located that the entire filter area is in use at all times, and so both room and outdoor air pass through it. One standard cleaning tank and one standard loading tank shall be provided to clean and re-oil classroom filters for the entire building.

#### (Alternate)

Each unit ventilator shall be equipped with a single adhesive type spun glass replaceable type filter of 1" thickness. The filter shall be so located that the entire filter area is in use at all times, and so both room and outdoor air pass through it.

#### H. INTAKES

Outdoor air intakes shall be constructed of aluminum (steel) and shall consist of #10 gauge aluminum (#12 gauge steel) enclosing frame and #12 gauge (#14 gauge steel) inverted-V or chevron type weather louvers. A ½" square mesh Galvanized steel or aluminum screen shall be provided at the back of the box and attached thereto.

Intakes shall be furnished to masonry contractor with instructions for setting, but electrical heating contractor shall be held responsible for correct installation. Intakes shall be finished in natural aluminum (brown baked enamel-steel).

(Optional)

Intakes shall be of the panel wall type not over 1 ½" deep constructed of #14 gauge aluminum (#16 gauge steel) with a ½" mesh screen provided at the back of the louver. Intakes shall be finished in natural aluminum (brown baked enamel-steel).

#### I. DRAFT BARRIER

Furnish and install where shown on plans a Draft Barrier of Chromalox Type BB Baseboard flanking each unit ventilator. Power supply of the Baseboard shall be connected single phase through the unit ventilator control system step controller as the first step of heat energized and the last step deenergized. Power leads for connection to the adjacent Baseboard sections shall be wired to the step controller at the unit ventilator manufacturer's factory. These leads shall be coiled in the unit ventilator end compartment ready for field connection to the adjacent Baseboard sections.

#### J. CLASSROOM TEMPERATURE CONTROLS

A complete system of (electric) (electronic) (pneumatic) room temperature controls for each classroom unit ventilator shall be furnished and installed by the temperature control system manufacturer as described elsewhere under "Classroom and Auditorium Unit Ventilator Temperature Controls".

(Alternate)

#### CHROMALOX CLASSROOM TEMPERATURE CONTROLS

Each type MA Chromalox Classroom Unit Ventilator shall include a complete self-contained (electric) (electronic) room temperature control system capable of maintaining precise control of room air temperature during heating, ventilating and natural cooling operation. The system shall consist of room and discharge air sensing elements, room temperature setting dial, combined damper and step controller operator of fully oil submersed type, step controller, with individual microswitches of 4500 watt resistance load rating, linkages and connecting wiring to the terminal board, all factory mounted and wired in the unit ventilator end compartment. This control system shall be furnished and factory installed by the unit ventilator manufacturer.

The day cycle of control for each classroom unit ventilator shall be as follows whenever the self-contained control system is energized:

- 1. While the room is below the temperature setting of the room thermostat, the electric operator shall hold the unit ventilator dampers closed to outdoor air, so that the fans recirculate all air through the electric heating bank. At the same time it shall position the switches of the step controller closed so that the unit ventilator produces full heating capacity.
- 2. As the room temperature rises to the room thermostat's setting, the electric operator shall first open the unit ventilator minimum air damper to admit the specified minimum percent outdoor ventilating air, and then shall reduce in steps the unit ventilator heating capacity by opening in the proper sequence the step controller switches which operate the unit ventilator heating elements, and (where Draft Barrier baseboard heating is involved) open the step controller switches for the electric baseboard heating elements. The step controller switch sequence shall be as recommended by the unit ventilator manufacturer.

- 3. If room temperature rises above the room thermostat's setting due to solar heat gain, the electric operator shall close the unit ventilator minimum air damper and at the same time begin opening the main air damper for natural cooling purposes up to a maximum of 100% outdoor air if necessary.
- 4. The unit ventilator fan discharge sensing element shall prevent the discharge air temperature from falling below approximately 60°F., when full natural cooling, by modulating the unit ventilator main damper toward its closed to outdoor air position whenever necessary.

When de-energized during the night cycle, the self-contained control system shall be driven by a spring return in the electric operator to a position where both dampers are closed to outdoor air and all heating elements shut off.

Within a period of one year after the school building has been accepted, all necessary adjustments, service and instructions in operation shall be furnished, and any control equipment proving defective in manufacture under normal usage shall be replaced.

#### AUDITORIUM TYPE UNIT VENTILATORS

Furnish and install complete and in accordance with manufacturer's instructions Auditorium Type Unit Ventilators with capacities as indicated on plans.

All Auditorium Type Unit Ventilators shall be tested and rated in accordance with the ASHAE Standard Code.

Units shall be especially quiet operating and designed specifically for auditorium ventilation. General Purpose Heating and Ventilating Units designed primarily for industrial and commercial ventilation application shall not be acceptable under the intent of these specifications.

The fan outlet velocities shall not exceed 1275 FPM.

- A. DISCHARGE SECTION section shall be acoustically lined with 1/2" sound absorbing insulation.
- B. MOTOR AND DRIVE shall be completely enclosed within the unit casing. It shall be factory wired to a conduit box mounted on the outside of the casing. Accessibility to the motor and drive shall be through hinged access doors. The motor shall be single speed, 1725 RPM, (Optional -- two speed) for operation at Volt, phase, 60 cycles, and shall be suspended on a hinged vibration absorbing adjustable base.
- C. FAN SECTION shall consist of slow speed double-inlet double-width centrifugal fans with forwardly curved blades. The fan wheels shall be mounted on a common hollow steel shaft supported by permanently lubricated bearings.
- D. ELECTRIC HEATING BANKS The individual heating elements shall be mounted in a heavy formed steel frame. Each element shall be of the tubular finned metal sheath type, having highest quality coiled resistor wire embedded in refractory material within a tubular metal sheath and with a hydraulically repressed cross section. The individual heating element shall have furnace brazed helical coiled fins for rapid heat transfer, and the entire element shall be furnished in corrosion-resistant finish.

Automatic reset snap-action type thermal protection operating thru the power contactor holding coil(s) and/or temperature control system shall be furnished for protection in the event of overheating from any cause.

Each heating bank assembly shall be designed and wired for Volt, three-phase power supply, with single element switching of no more than 10 individual finned tubular elements. Any remaining elements shall be switched in groups by contactors whose holding coils are operated by the room temperature control system.

- **E. WIRING** Power supply and temperature control system wiring to auditorium unit ventilators shall be as shown on plans. Conduits shall be brought to junction box (by electrical contractor) located near the temperature control step controller. Wiring between the junction box, the step controller, the power contactor(s), the electric heating bank, and the fan motor conduit box shall be done by the electrical contractor. Note that the electric (or electronic) temperature control system (or the pneumatic control system damper EP switch at the Unit) shall operate from a separate 115 Volt, single-phase, 60 cycle electrical circuit.
- **F. FILTER SECTION** (Optional) shall be Straight Bank and supplied with one set of Throw-away type Filters. Filter section shall be located on air intake side of Heating Element.
- **G. DAMPER SECTION** Both Room Air and Outdoor Air dampers shall be mounted on weather-proof, permanently lubricated bearings. The Room Air damper shall be automatic "Back-Draft" operation to prevent any outdoor air from being blown into the room through the room air opening and shall be linked for positive positioning of the opening cycle.
- H. INTAKES Outdoor air intakes shall be constructed of aluminum (steel) and shall consist of an aluminum (steel) enclosing frame and inverted-V or chevron type weather louvers. A ½" square mesh galvanized steel or aluminum screen shall be provided at the back of the box and attached thereto.

Intakes shall be furnished to masonry contractor with instructions for setting, but electrical heating contractor shall be held responsible for correct installation.

I. AUDITORIUM UNIT VENTILATOR TEMPERATURE CONTROLS - A complete system of (electric) (electronic) (pneumatic) room temperature controls for each auditorium type unit ventilator shall be furnished and installed as described elsewhere under "Auditorium Unit Ventilator Temperature Controls".

#### HI-FLOW UNIT HEATERS - (TYPE CHF)

Furnish and install "Chromalox" CHF Hi-Flow fan type unit heaters with heating capacities as shown on the heating plans. Each heater is to be provided with chromed tubular supports for permanent wall or ceiling mounting, yet allowing adjustment to direct air up or down as desired. The electric resistance heating element shall be mounted on the discharge side of the fan motor. Each heater shall also be furnished with an on-off manual controlled toggle switch and a positive acting thermal cutout which will automatically open the heater circuit if normal operating temperatures are exceeded, and with a manually operated reset button which will close the heater circuit when normal temperatures are restored. All heaters shall be designed for operation on

Volt, 60 cycle, single-phase current supply.

#### UTILITY SPOT HEATERS - (TYPE HV)

Furnish and install in accordance with heating plans, "Chromalox" Type HV Utility Spot Heaters of the heating capacities shown. Each Utility Spot heater shall be the convection type. The enclosure shall be a perforated sheet metal housing finished in Cocoa Brown wrinkle lacquer, solid metal ends and mounting brackets. The heating elements shall consist of steel sheath enclosed strip heaters designed for operation on volt, single-phase power supply.

#### UNIT HEATERS - (TYPE UB)

Furnish and install "Chromalox" Type UB Unit Heaters with heating capacities and air delivery capacities as shown on the heating plans. Each heater is to be provided with wall mounting brackets for permanent wall mounting, adjustable louvers on the discharge side to direct air up or down as desired and with electric resistance heating element mounted on discharge side of the fan motor. Automatic thermal overheat protection shall be provided. Heating elements shall be designed for Volt, three-phase operation and fan motor for Volt, single-phase operation. For safety, heating elements shall be of the metal sheath type with resistance wire embedded in refractory material and with sheath surrounded by metallized fins for quick heat transfer.

RECESSED WALL ELECTRIC HEATERS - (TYPE RF)

Furnish and install in accordance with the heating capacities as shown on the heating plans, E. L. Wiegand Co., "Chromalox" Type RF recessed wall fan electric heaters. Each heater shall be complete with the necessary heating element, roughing-in wall box, on-off control switch, thermal overheat switch, built-in thermostatic control and fully enclosed motor. For safety, the heating element shall have the resistance wire enclosed in a refractory material surrounded by a metal sheath with furnace brazed helical fins to give quick heat transfer to the moving air stream. The built-in thermostatic control shall be of a sensitive bulb and capillary type, fully enclosed and snap action to prevent radio or TV interference. The thermostat shall have a temperature adjustment range between 55°F. and 85°F. Thermal overheat protection shall be provided to de-energize the heating elements in case of fan failure or obstructed air flow.

The cabinet design shall be of a type providing a slight projection from the wall and an air seal to prevent dirt streaks and leakage along the wall surface. The front of the heater shall be enclosed with a close mesh grille to prevent insertion of objects into the moving fan blade or the heating element. Each heater assembly shall be designed for operation on volt, 60 cycle single-phase current supply.

(Optional)

A power circuit relay shall be integrally mounted behind the heater front panel. Purpose of this relay is to provide a means of remotely interrupting the heater power supply at night by a Zone Night Setback Thermostat. The relay secondary shall be connected to the 120 volt 60 cycle single-phase Day-Night Control Circuit.

(Optional)

The on-off control switch shall be omitted and the thermostatic control knob shall be mounted behind the heater front panel to prevent unauthorized changing of temperature settings.

BASEBOARD HEATERS - (TYPE BB)

Furnish and install in accordance with the heating plans "Chromalox" Type BB baseboard heaters. Lengths and capacities shall be as shown on the heating plans. Baseboards shall be complete with all necessary heating elements, brackets, end closures, splice plates, interior and exterior corners, bonderized suitable for finish painting in the field, all to be installed in accordance with the recommendation of the manufacturer. The baseboard enclosure shall deliver both convected and radiant heat.

Heating elements shall consist of steel sheath enclosed strip heaters without fins, 1-1/2" wide x 3/8" thick and designed for operation on volt, single-phase power supply. Splice boxes shall be designed to permit supply wiring from top, bottom, right, left or back as desired. Heating element shall be mounted with terminal end fixed and the other end slideably supported in order to provide for expansion. Elements shall be free from expansion noises and shall not produce any 60 cycle hum.

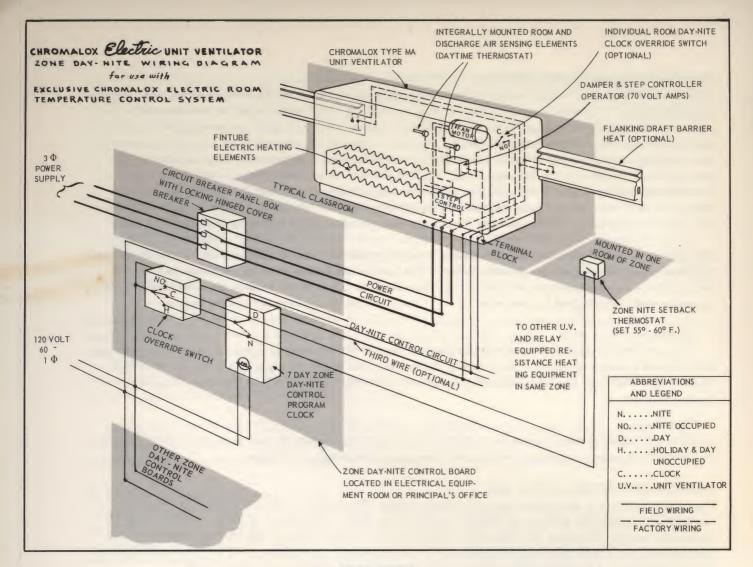
CABINET CONVECTORS - (TYPE KCF and KCR)

Furnish and install in accordance with the heating plans "Chromalox" Type KCF (KCR) Cabinet Convectors of the heating capacities shown. Each Cabinet Convector front enclosure shall be constructed of no lighter than 18 gauge metal with suitable grilles and baffles to prevent insertion of foreign matter into the cabinet. For safety the heating elements shall consist of steel sheath enclosed strip heaters designed for operation on volt, single-phase power supply. A conduit box shall be supplied for wiring connections to the heater, mounted below the heating element.

(Optional)

A power circuit relay shall be integrally mounted behind the convector front panel. Purpose of this relay is to provide a means of remotely interrupting the heater power supply at night by a Zone Night Setback Thermostat. The relay secondary shall be connected to the 120 volt 60 cycle single-phase Day-Night Control Circuit.

NOTE: These specifications and wiring diagrams are general in character and are not intended for a specific application. They should be of help, however, in aiding the architect and engineer to feel "at home" with electric comfort heating. For further information consult the Chromalox representative in your area. His comfort heating specialist will be happy to work with you.



#### **OPERATION**

"DAY" (Zone Day-Night Control Program Clock approximately 7:30 A.M. - 4:00 P.M. Monday-Friday) and "NIGHT OCCUPIED".

To begin morning warmup the Day-Nite Clock moves from night to day position thus by-passing the Zone Night Set Back Thermostat and energizing the Day-Nite Control circuit continuously. Since the classroom temperature at that time is below the room daytime thermostat setting, the unit ventilator discharges full heating capacity with both dampers closed to outdoor air. This full heating continues until room temperature approaches the room thermostat setting and then normal "Day" operation begins.

During "Day" operation each classroom is maintained at the set temperature of the room daytime thermostat mounted within the unit ventilator. The minimum air damper is free to admit the necessary outdoor ventilating air after the morning warm-up is completed. The main air damper is free to open should any room cooling be necessary.

#### "NIGHT", "HOLIDAY AND DAY UNOCCUPIED"

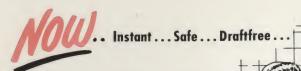
The Day-Night control circuit operation is transferred through the Zone Night Setback Thermostat. When the control circuit is de-energized, each unit ventilator damper and step control operator is driven by a spring return to a position which closes both dampers to outdoor air and de-energizes

all electric heating elements and fan motor within each unit ventilator. Whenever the Zone Night Setback Thermostat is unsatisfied (from its setting of 55° to 60° F.) it energizes the Day-Nite control circuit. Each unit ventilator room control system, being unsatisfied from its set temperature of approximately 72°F., then calls for full heating -- with all unit ventilator heating elements energized and both dampers closed to outdoor air. Full heating continues in all classrooms of the zone until the Zone Night Setback Thermostat located in one of the classrooms is satisfied. The Day-Nite control circuit is then de-energized and the damper and step control operator within each unit ventilator is returned by its spring to a position where both dampers are still closed and all heating elements as well as the fan motor are off. This on-off unit heater type cycling operation continues throughout the setback period.

#### "HOLIDAY"

All Christmas, Easter, and extended vacation periods.

"Holiday" position of the Zone Program Clock override switch transfers Day-Nite control circuit operation through the Zone Night Setback Thermostat, thus insuring maintenance of the zone setback temperature during both day and night periods, as well as continuous closure of the unit ventilator dampers to outdoor air.



#### RADIANT HEAT

for real comfort in your bathroom



RADIANT BATHROOM HEATERS

heat in your bathroom . . .



QUICK DRYOFF AFTER BATH

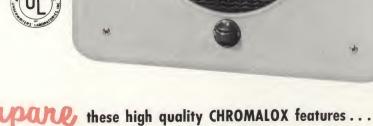


COMFY MORNING SHAVE



FOR DRYING LINGERIE





- 1. High radiant component . . . to warm you quickly as you leave your
- tub or shower. No moving air—for moving air is cooling air.
- 2. Heating element is Incoloy sheath, like range cooking units. Completely insulated and electrically safe—even if accidentally touched.
- 3. Double-wall construction keeps back temperatures low and heat loss down.
- 4. Heavy-gauge wall box fits standard stud spacing . . . quickly and easily mounted in new or existing construction.
- 5. Reflector well is highly-polished embossed chrome, scientifically designed to direct radiant heat efficiently outward.
- 6. Heavy-gauge die stamped steel cover is finished in neutral seafoambeige baked-on enamel that will not chip, craze, tarnish or show waterstains or fingermarks.
- 7. Polished chrome guard of smart design . . . rugged for extra safety.
- 8. Clean, modern design, has 'family resemblance' to the Chromalox Wall-Insert Fan Driven Heater when used in the same home.

Dispels Chills Anytime



7500 Thomas Boulevard • Pittsburgh 8, Pa.

# you can have quick-warmth for a cozy, draft-free bath without dirt, flames or fumes.



No need to rush through your bath because of chilling, rapid evaporation effect of forced air on your skin... no need to overheat your entire home in summer or winter to enjoy a leisurely bath. A flick of the switch on the Chromalox Radiant Bathroom Heater sends sun-like radiant heat to instantly warm you and the bathroom.

Built into the wall, recessed between standard stud spacing, the smartly designed heater face extends only a few inches into the room eliminating wall streaks. The Chromalox fully-enclosed heating element is all metal... gives absolute safety from shock, has a positive seal against moisture and cannot break. The same construction proven by over 38 years of heavy industrial applications... well-known in the home on electric ranges and in hot-water heaters.

Beautifully designed to match the decor of the modern bathroom. Longlasting seafoam-beige face-frame is set off with jet black intake and outlet circulating vents and highlighted with bright polished chrome guard and embossed chrome reflector well. A heater of real beauty, with quality-plus construction of heavy die-pressed sheet steel for long-life service, safety and dependability. Designed for your complete heating pleasure.

Installation Is Easy In New or Old Homes...



Insert roughing-in wall box into wall frame, fasten to studs with nails or screws.



2. Connect 120 or 240 volt A.C. power to switch.



Fasten front-cover and heater assembly to wall-box with four screws.

#### SPECIFICATIONS AND PRICES

CATALOG NUMBER	VOLTS A.C.	WATTS	B.T.U. OUTPUT	PRICE
RBH-113	120	1320	4500	\$31.50
<b>RBH-213</b>	240	1320	4500	\$31.50

#### RATING SUITABLE FOR F.H.A. APPROVAL.

Wall Housing Dimensions: 20" high x 14" wide x  $2\frac{1}{2}$ " deep. Front Cover Dimensions:  $22\frac{3}{6}$ " high x  $16\frac{3}{6}$ " wide x  $2\frac{1}{2}$ " deep. Weight:  $13\frac{1}{2}$  pounds.

#### WARRANTY

Chromalox Radiant Bathroom Heaters are unconditionally guaranteed against defects in material and craftsmanship. Warranted for long-life performance when installed in accordance with simple instructions enclosed with each unit.



#### EDWIN L. WIEGAND CO.

7500 Thomas Boulevard

Pittsburgh 8, Pa.

(P7-25) L-1206 C

Printed in U.S.A.



# CHROMALOX THERMWIRE

Here's the modern method of heating your home with clean, safe, silent, electric radiant heat. A completely hidden heating system in your ceiling without the clutter and expense of radiators, pipes, ductwork, furnaces or chimneys.

Continuous coils of Chromalox Thermwire are run back and forth across the entire ceiling area, stapled in position, and then covered with plaster. From this large area heat source, even and gentle radiant heat silently radiates downward to efficiently warm everything in its path. Clean, healthful sunshine warmth with all the added benefits of automatic and individual thermostat control for each room's best comfort. You'll like healthful, comfortable, ceiling radiant heat . . . nature's way of heating.







May be installed with similar ease in dry-wall construction, using a coat of mastic under the finish gypsum wall board.

#### You get all these RADIANT HEATING BENEFITS with CHROMALOX CEILING THERMWIRE

#### COMPLETELY CONCEALED HEATING

Chromalox Ceiling Thermwire is completely out of sight. Entire floor and wall area may be used for free arrangement of furniture and drapes without airoutlet or radiator interference.

#### HEALTHFUL RADIANT HEAT

Even heating without hot or cold forced air blasts. Gentle, low temperature, spread-out heat source, does not dry out air . . . lower room temperatures are possible with complete comfort.

#### FREEDOM FROM MAINTENANCE

Absolutely no moving parts, no fuel or fume worries, no radiators, furnace or filter maintenance. Completely noiseless . . . no servicing or repairs. Should last a lifetime.

#### HOUSEWORK SIMPLIFIED

Your furnace is miles away at the power plant when you use clean electric heat. No fumes, dust or dirt can be generated in your home to soil your furniture or clothing, or to streak your walls.

#### **AUTOMATIC FLEXIBLE CONTROL**

Individual room thermostats automatically compensate for outside sun and wind influence and still permit quick heat response to your selection for each living zone . . . bedrooms, cool; living quarters, warm; bathroom, warmer.

Fastening Ceiling Thermwire to your ceiling is really the only extra buildingstep required to give you a complete, modern heating system. Your ceiling then takes the place of an expensive furnace, ductwork, pipes, radiators and even the chimney . . . truly a tremendous saving in equipment over conventional heating systems!

No fumes, flames, exposed wires . . . everything completely insulated and safely concealed in the ceiling. No blowers, radiators, moving parts or fast moving air . . . there is no noise.

#### COMPLETE PLANNING FREEDOM

Whether you plan to build in modern or conventional design, with slab or basement, Chromalox Ceiling Thermwire requires no utility room for a furnace and allows a clean, uncluttered basement for your finished gameroom or workshop. It is functionally part of your home and cannot get in the way.

#### CHROMALOX Ceiling Thermwire RADIANT HEAT

The most simple — efficient — modern concept in home heating

THERMOPLASTIC INSULATION

RESISTANCE HEATING ELEMENT

Each set of Chromalox Ceiling Thermwire is prefabricated in a definite length to supply a specific wattage at standard voltage rating. Every set is equipped with an 8 foot, non-heating power lead, color coded and stamped with metal tags to identify wattage and voltage. Listed by Underwriters' Laboratories, Inc.

2	40-VOLT SETS	(RED LEAD)		120	-VOLT SETS (Y	ELLOW LEAD)		240 and 120
CAT. NO.	PRICE	WATTS	MAX. LGH. FT.	CAT. NO.	PRICE	WATTS	MAX. LGH. FT.	VOLT AC COLOR STRIPES
HW-24040	\$10.50	400	156	HW-12020	\$ 7.74	200	78	Dark Green
HW-24060	12.20	600	234	HW-12030	10.30	300	117	Black
HW-24080	14.40	800	312	HW-12040	11.55	400	156	Tan
HW-24100	16.50	1000	390	HW-12050	12.50	500	195	Orange
HW-24120	18.80	1200	467	HW-12060	13.42	600	233	Brown
HW-24140	21.20	1400	545	HW-12070	14.63	700	272	Blue
HW-24165	24.10	1650	643	HW-12082	16.13	825	321	Gray
HW-24195	27.40	1950	760	HW-12097	17.86	975	380	Red
HW-24230	30.50	2300	896	HW-12115	20.04	1150	448	Yellow
HW-24270	34.30	2700	1052	HW-12135	22.66	1350	526	Purple
HW-24320	40.40	3200	1247	HW-12160	25.87	1600	623	Pink
HW-24380	50.60	3800	1481	HW-12190	29.52	1900	740	None

A complete selection of line voltage thermostats and low voltage thermostats with transformer-relays is available from your Chromalox Distributor. Ask for bulletin L-1153.

#### ADEQUATE INSULATION CUTS OPERATING COSTS

Heating equipment always functions more economically when adequate insulation is provided against the extremes of cold and humidity. Adequate insulation means smaller installed heating capacity and savings in operating costs. Minimum insulation requirements may be considered as follows for most latitudes of the U.S.:

Ceilings and Roofs: 6" to 8" mineral wool, or equal.

Walls: 3" mineral wool batts or equal.

Under Floors: 2" to 3" batts of mineral wool or equal.

Concrete Slab Floors: 2" perimeter insulation around inside edge of outer wall and a

foot on the underside of slab.

This is the minimum amount of insulation essential for your Chromalox Ceiling Thermwire to provide the delightful comfort and economy you expect. This same insulation will keep your home cooler in summer.

WARRANTY

Chromalox Ceiling Thermwire is unconditionally guaranteed against defects in material and workmanship. Warranted for long-life performance when installed in accordance with the simple instructions supplied.





Printed in U.S.A



The real beauty of Chromalox electric heat lies in your ability to select the best temperature for every room to exactly match your comfort requirements, regardless of activity or outside weather conditions. There is no need to overheat the entire home to keep that chilly room on the windy side comfortable . . . no need to be cold on one side of the house because the other side receives extra heat from the sun.

With individual room heaters and independent room controls you get the exact heat for comfort in every room. Bedrooms cool, bathroom warm, nursery still warmer; living room, kitchen, utility and playroom are all kept at the exact heat level for real individual comfort. Rooms

seldom used may be left on low heat.

You're no longer at the mercy of a 'one-temperature' central system, with its circulated dust, dirt and fumes, when you use modern electric heat with individual room controls. It's the final touch of modern convenient living in the home already served by a growing host of electrical robots.

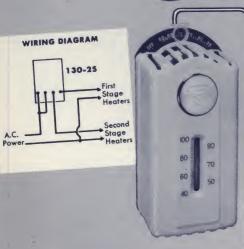
Chromalox thermostats give you short, frequent heating cycles; quick, accurate response; low installation costs and a healthful temperature in every living zone. Used with any of the complete line of Chromalox Heaters, you get all the real advantages of modern electric heat.

# Choose from these ... CHROMALOX Precision THERMOSTATS









#### LINE VOLTAGE CONTROLS

TYPE WR-61 SINGLE-STAGE RECESSED MOUNTING

WR-61 (SPST)

WR-63 (DPST)
Range: 55° F. to 85° F.
Differential: Approx. ½° F.
Electrical rating:
2600 watts, 120 volts A.C.

5200 watts, 240 volts A.C.

heat. Specifically designed for electric heating, it features mounting in a standard 2" x 3" outlet box which allows only the small face plate and control knob to be visible on wall surface. Control knob may be rotated through a central range from 85° to 55° F . . . a lower adjustment to COLD position allows for complete shutdown for summer, weekends, vacations, etc. An extremely narrow differential of ½° F. keeps room temperature on an exact level with no uncomfortable overshoot or chilling temperature drops. Modern in design with smooth rounded contours . . . nothing to break, silent enclosed switch action; no flash, click or arc, truly the elite of line voltage controls!

Type WR-61—A heavy-duty line voltage thermo-

stat with sensitivity to both radiant and convection

TYPE WR-80 SINGLE-STAGE SURFACE MOUNTING

Range: 40° F. to 80° F.
Differential: 3° F.
Electrical rating:
3000 watts, 120 volts A.C.
4600 watts, 240 volts A.C.

Type WR-80—A heavy-duty, single stage, line voltage thermostat which offers positive accuracy and long reliable service. Sensitivity is assured through the patented hydraulic-action which gives rapid response to temperature changes. Straight line performance through the entire adjustment range of 40° to 80° F. with a differential of 3° F. is given because of the uniform power of the hydraulic-action element. The rugged snap-action switch with its fine silvered contacts is fully protected against dust by an enclosing cover. Modern in design, the tough metallic gray finish with chrome trim enhances the quality look of all interior decorative schemes.

TYPE 130-25 TWO-STAGE SURFACE MOUNTING

Range: 60° F. to 85° F.

Differential: 1½° F.

Electrical rating:
two 15 ampere circuits, 240
volts A.C.

Type 130-25—This two-stage, line-voltage type thermostat modulates heating loads whose elements can be divided into two groups, such as the Chromalox Baseboards or the Radiant Wall Panels. Its operation is identical to the HBH low voltage control—but without the need for transformer-relays. Two built-in microswitches energize separate heating loads up to 3600 watts each at 240 volts. The hydraulic bellows actuate the microswitches through the temperature range of 60° to 85° F, but a manual "OFF" position gives a positive summer shutdown.

CHROMALOX

Electric

HOME HEATING

PRODUCTS

Automatic Portable



Radiant Bathroom Heater





Radiant Wall Panel

#### LOW VOLTAGE CONTROLS

Type H—An extremely sensitive, low-voltage, single-stage thermostat. The small mass in the bi-metal and the little power required to open and close the circuit enables it to respond to room temperature changes quickly. The magnet-type enclosed mercury switch operates on a temperature variance of only ½° F. Thermostat actuates the heavy-duty R-879A Relay, which in turn energizes the heaters. The Type H operates on only 24 volt power supplied by transformer—an additional safety feature, as 24 volts is maximum voltage at the control point. This low voltage control wiring may be stapled in position anywhere, in a matter of minutes, and is easy to pull through existing walls.

**Type HBH**—This low voltage, two-stage thermostat actually operates as two separate Type H thermostats, within one case, each stage closely controlling its particular bank of heaters. When the temperature drops ½° below the thermostat setting, the first stage closes; and if the temperature continues to drop an additional 1° F, the second stage closes to energize the full group or bank of heaters. This arrangement limits the electrical demand and also modulates the heat output nicely in mild weather. The HBH can be used to control Baseboard Heaters so that the first stage of heaters, under the windows, comes on first and goes off last . . . matching heat output to heat loss.

Type TA-802-D—A double-setting, low-voltage thermostat, designed especially for remote control in motel installations. Provides an inexpensive means of remotely lowering the temperature in any motel unit by approximately 20° F. for operating economy. From a central switch panel mounted in his office, the manager can lower the temperature about 20° F. in an unoccupied unit to a low "standby setting." The high or "occupied setting" keeps a temperature of 56° to 77° F. as selected by the occupant. This high range may be set (or narrowed) and locked. This arrangement also prevents freezing of water pipes, toilet bowls, and saves on BTU requirements. The thermostat operates on 24 volts power in conjunction with R879A Relay. The low voltage wiring is small in size and quickly installed at a low cost.

**Transformer-Relay R-879A**—The Chromalox R-879A Mercury Switch Relay is designed specifically for control of electric heating equipment, (non-inductive). The mercury switch is operated by a plunger-type solenoid having no metal-to-metal contact, thus assuring quiet operation. The built-in 24 volt transformer supplies the low voltage power to operate the solenoid.

Transformer-relays may be grouped in a central location near service entrance, in the utility room, or adjacent to the heaters . . . using the arrangement for smallest runs of 240 volt wiring and easy installation. Dimensions are 6%" high, 4¼" wide and 3" deep.

#### TYPE H SINGLE-STAGE

For use with 24 volt transformer-relay. Range: 55° F. to 85° F. Differential: 1° F.

#### TYPE HBH TWO-STAGE

For use with two 24 volt transformer-relays. Range: 55° F. to 85° F. Differential: Each stage ¾° F.

#### TYPE TA-802-D DOUBLE-SETTING REMOTE CONTROL

For use with 24 volt transformer relay.

High setting range: 56° to 77° F.

Low setting range: 36° to 57° F.

Temperature difference between high and low setting, 20° F.

Differential for each stage: 13/4° F.

#### TRANSFORMER-RELAY R-879A

For use with Chromalox low-voltage thermostats.

Wall Insert

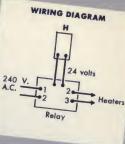
Heater

SPST

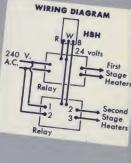
Electrical capacity: 4600 watts, 240 volts only.

(Use R-879B for two 4600 watt loads)

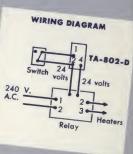


















Spot Heater





# LOCATING MOUNTING POSITION FOR CHROMALOX THERMOSTATS

All thermostats should be wall mounted in a 'sensing' location most typical of the entire area to be heated, making certain that false hot or cold impressions are not recorded:

- 1. Mount on inside wall approximately four feet from floor, as near as possible to center of controlled area.
- Avoid hot spots from concealed hot water pipes, radiation from sun, TV sets, radios and lamps.
- 3. Avoid cold spots from outside walls, down drafts from second-floor stairs, drafts from doors and walls with unheated rooms on other side.
- 4. Avoid dead spots without free circulation . . . behind doors, in alcoves or corners.
- 5. Stuff insulation around thermostat lead wires or conduit holes in wall to prevent false action from interior wall drafts.

#### IMPORTANCE OF INSULATION

The importance of proper and adequate insulation in today's modern home cannot be overemphasized. A fully insulated home means two important things . . . real comfort and operating economy. It's also a home ready for air conditioning. For details on proper insulation, write for, "Insulating Your Home For Electric Heat."

#### WARRANTY

The Chromalox quality-line selection of thermostat controls is unconditionally guaranteed against defects in material and craftsmanship. Warranted for long-life performance when installed and operated in accordance with the simple instructions enclosed with each unit.

#### LINE VOLTAGE

ı			PI	RICES	AND	SPECIFI	CATION	S		
ı	CATALOG	PRICE	STAGE	RANGE	DIFFER-	MAXIMUM RESISTANCE	COLOR	D	IMENSION	ıs
١	NUMBER	PRICE	JIAGE	KANGE	ENTIAL	LOAD, A.C.	COLOR	Width	Height	Depth
ı	WR-61	\$17.00	one (SPST)	55-85°F.	½°F.	5000 watt	BROWN Gold Trim	23/4"	41/2"	11/8"
	WR-63	20.00	one (DPST)	55-85°F.	1/2 °F.	5000 watt	BROWN Gold Trim	2 3/4 ''	41/2''	1 1/8 ''
	WR-80	19.00	one	40-80°F.	3°F.	4600 watt	GRAY Chrome Trim	23/4"	6"	21/2"
	130-25	22.95	two	60-85°F.	1 ½°F.	7000 watt	IVORY Black Base	2 3/4"	53/4"	21/2"

#### LOW VOLTAGE

CATALOG	DDICE	PRICE STAGE		RICE STAGE RANGE DIFFER- RESISTANCE		COLOR	D	IMENSION	MENSIONS	
NUMBER	PRICE	SIAGE	KANGE	ENTIAL	LOAD, A.C.	COLOR	Width	Height	Depth	
Н	\$12.00	one	55-85°F.	1°F.	4600 watts when used	Silver Bronze	111/16"	313/16"	1 5/8"	
нвн	20.00	two	55-85°F.	2½°F.	with trans- former-relay	Silver Bronze	13/4"	313/16"	21/16"	
TA-802 D	26.00	Double- setting	60-80°F. 40-60°F.	1 3/4 °F. 1 3/4 °F.	★R-879A Price \$13.70	Silver Bronze	2"	43/4"	1 1/8"	

<sup>★</sup> Use R-879B for two 4600 watt loads. Price \$22.80.



7500 Thomas Blvd.

Pittsburgh 8, Pa.



PLUS ... A new REMOTE CONTROL Two-Heat System CUTS HEATING COSTS



A centralized low-voltage remote control system specifically designed for electric heating of motels. It eliminates overheating or underheating—giving true customer comfort in any or all units. Installed with real savings over conventional heating systems, it holds down investment in new or expanding operations. A remote-control switchboard permits lowering temperatures in unoccupied units from "comfort setting" to a "standby setting" of 20° lower—yielding real heat savings and reasonable operating costs.

From your office...remote control of the electric heat in every unit in your motel!

Just a flick of a switch!



GUESTS ARRIVE ..

GUESTS DEPART...

H "comfort

LO

"standby setting"

Makes your motel truly modern—one that will be remembered.



### CHROMALOX Remote Control System

#### HEAT WHERE AND WHEN YOU WANT IT ... AT THE FLICK OF A SWITCH

By fllipping a small switch in the office, the desk clerk can change the temperature in any unit from the normal "comfort setting" to a lower, cost-saving "standby setting", approximately 20° lower. No need to heat unoccupied units.

As guests check in at night, several units are comfortably warmed for immediate occupancy . . . and the remaining units are switched from "standby" to "occupy" as rentals are

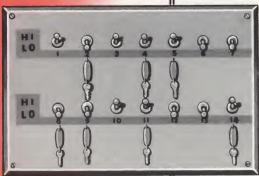


#### OFFICE CONTROL PANEL **GIVES REAL CONVENIENCE** -REAL ECONOMY

- You spend money for heating only when you are making money from rented units.
- System is fool-proof, cannot be abused by guest. Tamper-proof locking cover allows guest to adjust comfort setting to 77° F. or lower.
- Entire control system is wired with low-cost #18 bell-type wire. Light gauge wiring is quickly installed, merely stapled in position.
- Electric heating is quiet. No inrush air, no whirring fans, no cracking radiators or ducts, nor any noise to annoy guests.
- Electric heat is clean; no flame, no fumes, no circulated dust. All metal heating elements are shockproof, moistureproof & breakproof.
- Electric heat requires no pampering. There's freedom from maintenance since there are no moving
- Electric heat and controls cost less to install than other systems. No ducts, pipes, furnace rooms, chimneys, storage tanks.
- Versatile electric heat holds each unit at its own best temperature. No need to start an entire heating system in Spring or Fall to take the chill out of the
- Proper insulation makes electric heating surprisingly reasonable in operating costs. It costs very little to maintain "standby" setting of 40 to 60° F. for heat needs are low at reduced temperatures.

#### **Remote-Control Switchboard**

Standard wall-box and plate with switches assembled by your contractor to suit your unit requirements.



#### OFFICE SWITCH PANEL PROVIDES MAXIMUM CONVENIENCE

No more running back and forth to check the heat in each unit ... you have a complete picture of the operation of every unit, right on your remote control switchboard. The central switch panel is tailormade by your contractor to suit your unit requirements. A standard wall box is recessed in the wall between studding and the plate drilled to accommodate the number of switches required. Small hooks clamp under the switch escutcheon to hold the door key for each unit. Switches may be stamped or labeled to correspond to your unit numbers.

#### LOW-VOLTAGE THERMOSTAT GIVE FAST RESPONSE AND SIMPLIFIES WIRING

The Chromalox system employs a two-temperature, two circuit thermostat equivalent to two thermostats in one case. Only two wires, the size of bell wire, are run from each unit to the main office switchboard. Operation on 24 volt current allows the thermostatic element to be made lighter and more responsive to temperature changes. A built-in "heat anticipator" smoothes out heat flow to prevent overshoot or underheating. This action maintains a more constant room temperature with no noticeble temperature

The comfort stage scale range is 60 to 77° F., with a factory-adjusted stop to prevent setting above 77° F. This upper range may be narrowed and locked. The guest can choose any setting he desires, within the upper range—an important advantage in making your guests feel they can determine their own best heat level. The "LO" or standby setting operates the heaters thru the second thermostatic element over a range from 40 to 60° F., —20° F. lower than the higher "comfort setting". The entire thermostat is protected by a locking cover to present tempering protected by a locking cover to prevent tampering.



240 volts, 4600 watts capacity

#### FOR ELECTRICALLY HEATED MOTELS ...

## ADVANTAGES OF ELECTRICALLY HEATING YOUR MOTEL

- flameless electric heat is safe, clean, convenient.
- individually controlled temperatures in each unit.
- no noise from running motors, crackling radiators
   ... no registers.
- takes little space; allows complete decorating freedom.
- no ductwork, pipes, chimney or utility storage room is required.
- no moving parts, nothing to replace or wear out.
- completely automatic, always ready summer or winter.
- low cost, easy installation . . . a few screws to hold it, two wires to connect it.
- a heater to best fit any plan or any room.

#### WITH CHROMALOX LOW-VOLTAGE CONTROLS . . . YOU GET

- no overheating or underheating.
- longer equipment life.
- low installation costs . . . easy wiring.
- quick and accurate response.
- short, frequent heating cycles.
- safety . . . only 24 volts at the control points.



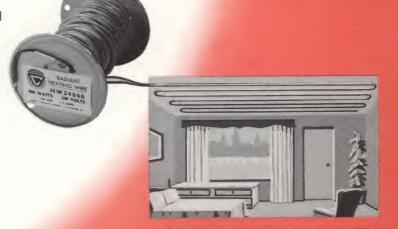
#### CHROMALOX RADIANT WALL PANEL

A clean, radiant, sunshine warmth, heat source. All-metal construction for long trouble-free life. Mounts in minutes.

(write for bulletin 950A)

#### CHROMALOX BASEBOARD HEATERS

A balanced radiant-convection heat. Gives even, noiseless heat at floor level. Allows complete freedom of room design. Paint to match walls. (write for bulletin 800-A)



#### CHROMALOX CEILING THERMWIRE

Completely hidden, gentle radiant heat, pushed downward from ceiling to warm everything in its path. Easy to install . . . allows individual room control. Nothing to wear out. (write for leaflet L-1207)



Low voltage wiring from switchboard and thru thermostat is connected to a Chromalox Mercury Switch Transformer Relay. This relays the thermostats low voltage action, through a plunger type solenoid, into usable line voltage for use by the heaters. It is usually mounted in available space, close to the heaters, to save on the expense of the heavier 220 volt wiring.



#### CHROMALOX RADIANT BATHROOM HEATER

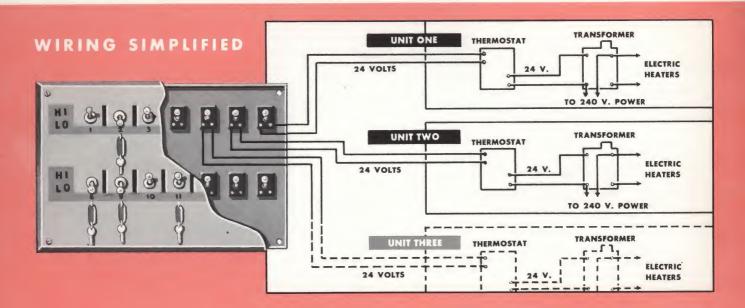
Warming, radiant heat causes no air movement. Recesses between standard studs and takes little space. Usually left on individual control only, for use when bathing. Absolutely safe. (write for leaflet L-1206)



low voltage, remote control two-heat system gives you . . .

- low-cost wiring
- lower heating costs
- convenient electric heat

- remote control
- easy installation
- long, dependable life



#### NO MATTER HOW YOU HEAT—INSULATION REDUCES FUEL BILLS

Adequate insulation will reduce your heating (and cooling) costs to less than half of the amount required for an uninsulated room. Proper insulation means smaller installed heating capacity, a greater

degree of comfort and great savings in operating costs. Minimum insulation requirements may be considered as follows for most latitudes of the United States:

This is the minimum amount of insulation essential for your Chromalox electric heating equipment to provide the delightful comfort and economy you expect. The same insulation will keep your rooms cooler in summer.

WARRANTY

Chromalox Thermostats, Transformer-Relays and all Chromalox Heating Equipment is unconditionally guaranteed against defects in material and workmanship. Warranted for long-life performance when installed in accordance with the simple instructions supplied with each unit.



**EDWIN L. WIEGAND COMPANY** 

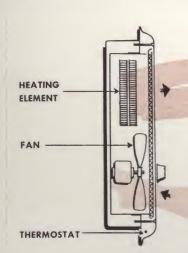


# CHROMALOX Fan-Driven Wall Insert EI add Comfort, Convenience



# Here is clean, automatic, healthful Electric Heat at its best . . .

- **Heating Element**—high quality, metal-sheathed, finned Minitube® elements are sagproof, moistureproof, long lasting and shockproof.
- Thermostat separately controlled by own selector-dial. Completely enclosed, UL listed, 55-85° range. Sensitive bulb-and-capillary with snap action which cannot cause TV or radio interference.
- On-Off Switch separate switch sets heater in automatic operation without disturbing comfort heat-level of thermostat setting.
- Fan quiet, smooth running action draws in cool air from floor and gently pushes warmed air thru top grille opening.
- Case—heavy sheet-steel finished in attractive baked-on seafoam-beige enamel with warm sepia-brown grille and control dials. Extends only 1 1/2" into room.
- Modern Styling blends with decorating colors and styling of any room.
- High Output packs a tremendous heating output into a small space.



#### New Living Comfort With Zoned-Heat Control

Today's home is divided into many living areas or zones...some for relaxing, some for play, work or sleeping. Chromalox Wall Insert Electric Heaters provide the best temperature under exact thermal control for every zone...living room—kept warm, bath—kept warmer, bedroom—cool, playroom, laundry or den at the exact heat-level desired. Rooms seldom used can be set at low-heat...no need to overheat or underheat the entire home to meet the requirements of any one activity zone. Heaters on the sunny side of the home cut off automatically if heat gain from sun is large.

Quiet, forced circulation gently spreads

warm air to all parts of a room with a minimum floor-to-ceiling temperature variance. There is no waiting for heat. No overshoot after the thermostat shuts off . . . action is positive, smooth, completely automatic and 100% efficient.

Heating capacities are large enough for all size rooms . . . from 3412 BTU to over 13000 BTU's. Built into the wall, it takes no floor space. Beautifully designed seafoam-beige outlet face trimmed in sepia-brown blends with the color decorations of all rooms. Dependable, clean, healthful heat is always ready for your complete comfort . . . where and when you want it.

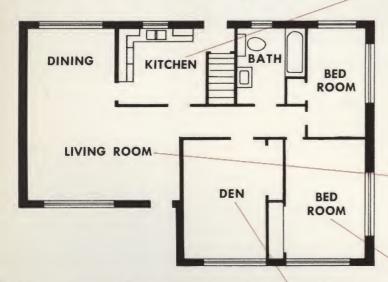
#### These important CHROMALOX features make the difference...



#### LECTRIC HEATERS

#### e, Beauty to your home

These Heaters FIT any floor plan— Clear your home for WONDERFUL living



Modern electrical heating clears your home of old-fashioned and space-robbing radiators, ductwork, pipes and furnaces. There are no flames, no soot, grime or combustion odors. Even the costly and bulky chimney is no longer required. Chromalox wall-insert Heaters allow you complete room-planning freedom. Any wall at any location in the room may be used for mounting . . . just where you want them.

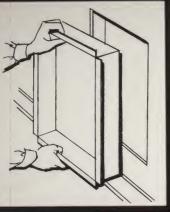
Heat is generated in the exclusive, superbly safe, Minitube heating element by efficient, clean and dependable electricity. Entirely self-contained, the compact but powerful heat generator is hidden within the wall—effortlessly holding the dialed temperature-level in each living zone . . . even in the coldest weather. Once this Chromalox Heater is set, you can forget the indoor weather—as a matter of fact, you can even forget the thermostat itself!

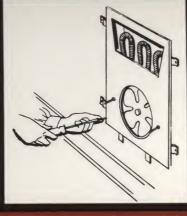
#### Your Assurance of Safety— Craftsmanship—Performance

The famous Chromalox metal-sheathed heating element construction gives you absolute safety from shock, moisture, sag or breakage. The same proven features are used daily in the home on such electrical servants as ranges, water heaters, clothes dryers, refrigerator defrosters and on hundreds of tough industrial uses by plants all over the world. You can count on Chromalox for Quality and Reliability . . . first in electric heating for over 38 years.



#### Installation . . . In 3 Easy Steps







Insert roughing-in box into wall frame and attach to wall studs.

Connect power supply to heater terminal block. Hang heater case in wall box.

Position front cover and fasten to heater case. Push on control knobs.

Wall housing dimensions: 20 ¼" high x 14 ¼" wide x 3 ½" deep. (wall housing shipped in separate carton)

Front cover dimensions: 22\%" high x 16\%" wide x 1\12" deep.

In New Construction: Rough-in top and bottom of framing, between 16" centers of wall studs, keeping bottom frame 10" from finish floor level. Fasten wall housing to wood framing with screws, allowing front flange to extend approximate thickness of plaster or other wall material. Wire-in 230-240 volt a.c. power thru bottom of inner housing. After finish wall surface is applied, make power connection to heater case terminal-block. Mount heater case into wall-housing with screws. Position front cover and fasten with plated screws. Attach dial control knobs.

In Existing Construction: Locate wall studs. Mark rough-in dimensions on wall surface between 16" wall-stud centers. Keep bottom line 10" from floor level. Score and remove wall surface material. Bring 230-240 volt a.c. power to wall cavity. (Top and bottom framing is not necessary on old construction.) Then, proceed as indicated above for new construction.

	Specifications and Prices								
Catalog		Rati	Output						
Number	Price	Volts, a.c.	Watts	BTU per hour					
RF-215	\$82.50	230-240	1500	5118					
RF-220	87.50	230-240	2000	6824					
RF-230	91.50	230-240	3000	10236					
RF-240	97.50	230-240	4000	13648					

Shipping weight of complete heater is 27 pounds.

Your local Chromalox Representative will gladly help you determine power requirements and operating costs in your area. You'll be surprised at how inexpensive and convenient Chromalox electric heating can be.

WARRANTY—Chromalox Fan-Driven Wall Insert Electric Heaters are unconditionally guaranteed against defects in material and craftsmanship. Warranted for long-life performance when installed in accordance with simple instructions enclosed with each unit.

# Other heaters created by Chromalox



UTILITY SPOT HEATER



HI-FLOW PORTABLE



RADIANT WALL PANEL



RADIANT BATHROOM HEATER

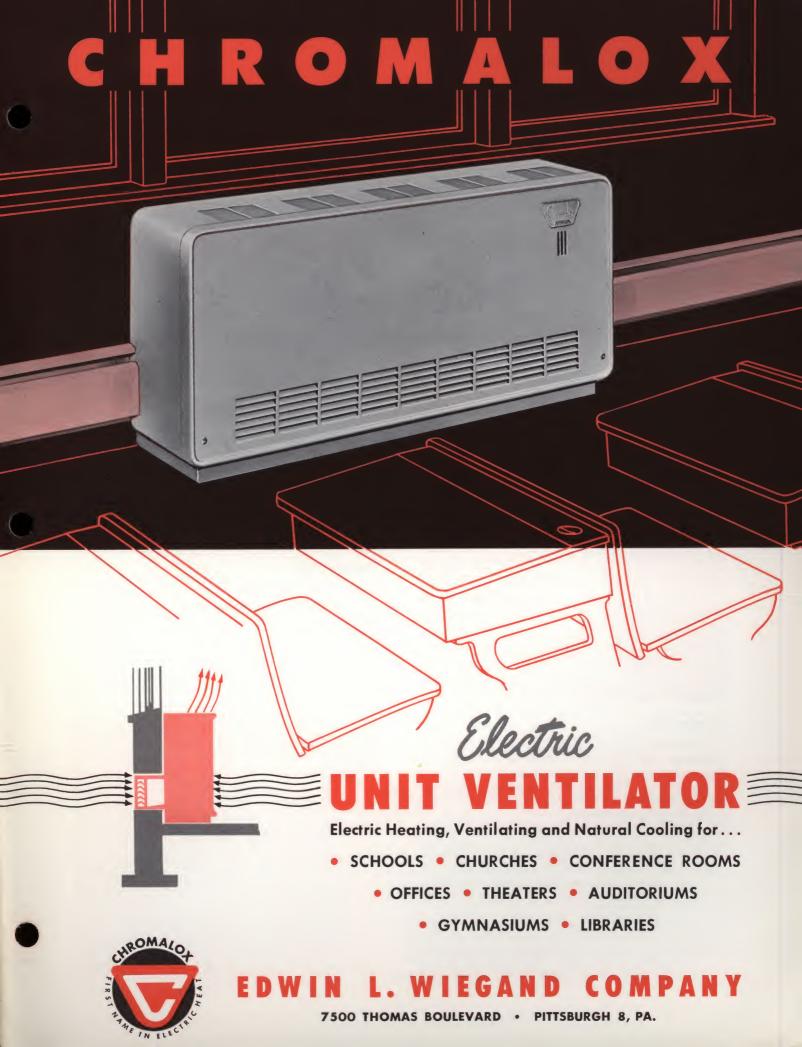


AUTOMATIC PORTABLE



BASEBOARD HEATERS

Bulletin 955A C(V7-50) Printed in U.

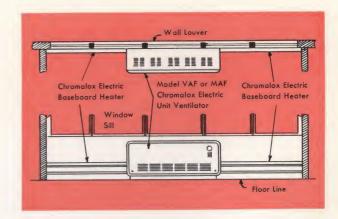


#### application

The Chromalox Electric Unit Ventilator has been specifically designed to meet the requirements for proper heating, ventilating and natural cooling of classrooms and similar rooms... wherever it is normal for many people to gather in a limited space. The fast response of the Chromalox Unit Ventilator to a room's changing requirements... from heating and ventilating to natural cooling, give the versatility required for

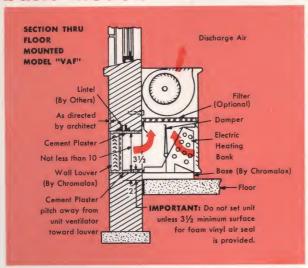
these applications.

One Chromalox Unit Ventilator is normally installed in each classroom below the window sill of the outside wall. A louvered opening through the wall permits the introduction of fresh outdoor air into the Chromalox Unit for proper ventilation and natural cooling of the room. In larger areas, such as auditoriums and gymnasiums, several Chromalox Unit Ventilators are commonly spaced along the outside walls to provide adequate heating, ventilating and natural cooling capacities. Compact automatic temperature controls can be completely self-contained within each Chromalox Unit Ventilator and can be obtained as a factory installed package, if desired.



To eliminate discomfort from window downdraft, a DRAFT BARRIER of Chromalox Electric Baseboard Heaters is recommended on both sides of the Chromalox Unit Ventilator extending the full window width. Positive control of this DRAFT BARRIER is obtained by wiring to the room temperature control system within the Unit Ventilator, insuring maximum protection against window downdraft whenever the room requires heating.

#### basic models



#### model VA

Model VA Unit is intended primarily for those applications where pneumatic temperature controls are commonly used. The basic VA model is available in three versions, VAF for floor mounting, VAC for ceiling mounting and VAA for adaptation to unusual window wall configurations.

During daytime operation, outdoor ventilating air and electrically heated recirculating air are admitted in proper proportions by a single leaf type damper. This air mixture passes through a one-piece filter and into the draw-through fan section where the air is uniformly mixed and quietly discharged toward the ceiling at high velocity.

A three-speed direct connected fan motor is equipped with an exclusive Super Cooling speed permitting air output 30% above normal during warm weather . . . at the teacher's discretion. The resulting increased air agitation in the room and the psychological effect

of increased air motion are effective in providing comfort when outdoor and indoor temperatures rise above 70° during the warm Spring, Summer and Fall months.

The Unit's external cabinet is constructed of 18 gauge furniture steel, finished in *smooth baked enamel* in any of *seven colors*, assuring easy maintenance of its attractive appearance.

#### model MA

Model MA Unit is identical in every respect to the Model VA except that it is equipped with an auxiliary minimum air damper. This assures the introduction of outdoor air in a manner to satisfy all state ventilation codes when electric or electronic temperature control systems are used. The basic MA model is also available in three versions, MAF for floor mounting, MAC for ceiling mounting and MAA for adaptation to unusual window wall configurations.



#### operation and controls

#### model VA-pneumatic controls

The pneumatic temperature control equipment is remarkably simple in operation. During the night and early morning warmup hours the damper is closed to outdoor air and all room air is recirculated through the electric heating elements. After the morning warmup, when room temperature reaches the thermostat setting, the damper begins opening to admit fresh outdoor ventilating air and some heating elements are deenergized, one by one as necessary. If the room tends to overheat due to solar, pupil and lighting heat gains, the remaining heating elements will deenergize, one by one until all are off. Finally, if overheating continues, the damper will continue to open to admit more and more outdoor air for natural cooling purposes, up to a maximum of 100% outdoor air, if necessary.

#### model MA-electric or electronic controls

Operation of the self-contained factory installed electric or electronic temperature control equipment is similar to the Model VA during the room warm-up period. However, as the room thermostat temperature setting is approached, the minimum ventilating air damper opens. If the room temperature continues to increase, heating elements are deenergized as necessary, one by one. As the last element is deenergized, the minimum ventilating air damper closes and the main damper begins to open for cooling purposes and continues opening up to a maximum of 100% outdoor air if necessary to maintain the room at comfort conditions.

Both VA and MA models insure the *most economical* operation possible by elimination of ventilating air during night periods. Both models also utilize outdoor air for winter cooling, without the use of electric heat for tempering.

#### selection =

#### air delivery capacity

The Chromalox Unit Ventilator should be selected so that the air delivery capacity shown in Table 1 will provide 30 CFM per occupant or 6 to 9 room air changes per hour, whichever is greater. This will enable the Chromalox Unit Ventilator to provide the natural cooling capacities in BTU per hour shown in the table when introducing a mixture of outdoor and recirculated air at the various discharge temperatures indicated. These natural cooling capacities are available to balance excessive heat gains within the room from the occupants, electric lights and direct and diffused solar heat without expensive refrigeration equipment operation.

TABLE 1									
Model No. VA & MA	Air Delivery CFM	Natural Cooling in BTU/HR With Room at 70° F. and with Unit Ventilator Discharge Air Temperature at:							
	Std. Air	65°	60°	55°	50°				
2000	500	2,700	5,400	8,100	10,800				
3000	750	4,050	8,100	12,150	16,200				
4000	1000	5,400	10,800	16,200	21,600				
5000	1250	6,750	13,500	20,250	27,000				

1.3 when fans are run at super-cooling speed.

#### heating capacity

After selecting a Chromalox Unit Ventilator with sufficient air delivery capacity, the *heating capacities* available for the size unit may be found in Table 2 below.

These heating capacities are available to balance all calculated heat losses of the classroom at design temperature conditions. Since electric heating coils release their rated heating capacity under all conditions, regardless of entering air temperature, this rated heating capacity can be considered total heating capacity available to offset room conduction, infiltration and/or

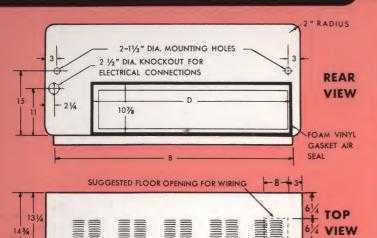
ventilation heat losses at all times.

When a DRAFT BARRIER of flanking Chromalox Electric Baseboard is specified, the Chromalox Unit Ventilator should be chosen with a heating capacity equal to the total calculated room heat losses less the heating capacity of the flanking baseboard.

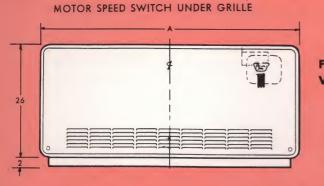
Each electric heating bank consists of up to nine time tested Chromalox Electric Fintubes, completely sheathed in steel and individually protected from overheating due to any cause by automatic reset overheat switches. This insures *complete* safety to pupils and maintenance personnel.

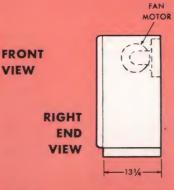
	TABLE 2									
Unit Model	Number	Air Delivery	RATED H To Match Total Ca	Discharge Air Temperature with 70° Entering Air Corresponding to Kilowati						
Number	Fans	Std. Air	Kilowatt Output	BTU Output	and BTU/HR outputs					
2000	2	500	0.8 Kw to 7.2 Kw (in 0.8 Kw increments)	2,700 to 24,600 BTU/HR (in 2700 BTU/HR increments)	75° to 115.4° F. (in 5.0° F. increments)					
3000	3	750	1.2 Kw to 10.8 Kw (in 1.2 Kw increments)	4,100 to 36,900 BTU/HR (in 4,100 BTU/HR increments)	75° to 115.4° F. (in 5.0° F. increments)					
4000	4	1000	1.6 Kw to 14.4 Kw (in 1.6 Kw increments)	5,500 to 49,200 BTU/HR (in 5,500 BTU/HR increments)	75° to 115.4° F. (in 5.0° F. increments)					
5000	5	1250	2.0 Kw to 18.0 Kw (in 2.0 Kw increments)	6,800 to 61,500 BTU/HR (in 6,800 BTU/HR increments)	75° to 115.4° F. (in 5.0° F. increments)					

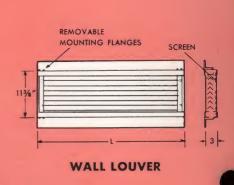
#### mensions... model VAF and MAF



CABI	CABINET AND LOUVER DIMENSIONS								
Unit Model Number	A	В	D	L					
2000	39	35	241/2	22					
3000	50	46	351/2	33					
4000	61	57	461/2	44					
5000	72	68	571/2	55					







Electrical Connections on right end only.

All dimensions in inches

#### For use with your CHROMALOX ELECTRIC UNIT

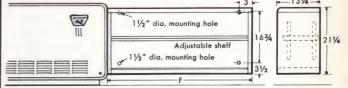
CHROMALOX ELECTRIC BASEBOARD HEATERS

FOR	WINDOW	DOWNDRAFT	PROTE	CTION	
			6		

Standard Heaters						
Cat. No.	Length	Volts	Watts			
BB-11	1 ft.	240	100			
BB-23	2 ft.	240	300			
BB-58	5 ft.	240	800			
BB-80	8 ft.	240	1250			

The above standard lengths and wattages can be combined to fit the overall width and heating requirements of the window wall on either side of the unit ventilator . . . giving complete protection from cold window downdrafts. Baseboard is finished in prime coat, ready for painting to match the wall surface.

#### CHROMALOX UTILITY CABINETS FOR ADDED STORAGE SPACE



Standard Utility Cabinets				
F				
24				
36				
48				

Combinations of the above cabinet widths can be wall mounted on either side of the Chromalox Unit Ventilator . . . providing storage area so often needed in the elementary classroom. Sliding doors are also available. Both cabinets and doors are finished with tough baked enamel and are available in any of seven colors.



7500 THOMAS BOULEVARD • PITTSBURGH 8, PA.



The floor register lifts out if cleaning of the

interior is desired.

### CHROMALOX Electric Floor Drop-in Heaters..

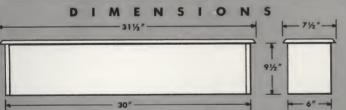
- Puts the heat where it is needed.
- No clutter with floor-level heat.
- True perimeter heating in high heat loss areas.
- Installs easily and out-of-way.
- Individual room thermostats provide comfort-level living for each room.

Chromalox Floor Drop-In Heaters provide the modern means of applying an effective warm-air wall directly under full floor-to-ceiling windows without conspicuous clutter around the base of window. Also provides an excellent warm air curtain at the foot of open stair wells, on the inner side of sun-parlor doors or anywhere heat is needed at floor level and wall space is not available.

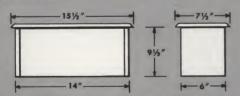
#### INSTALLATION

# WOOD FLOORS WINDOW WALL WINDOW WALL WINDOW WALL

PERPENDICULAR JOISTS

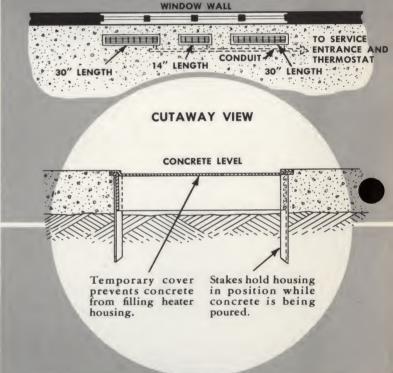


30-inch length for installation where floor joists run parallel to window-walls or may bridge one joist where they run perpendicular.



14-inch length for installation where joists run perpendicular to window walls.

#### SLAB FLOORS



SPECIFICATIONS AND PRICES					
Catalog Number	Prices	Volts, A.C.	Watts	BTU/HR	Weight
FDI-1435	\$21.00	120 or 240	350	1194	101/4 lb.
FDI-3075	\$39.50	120 or 240	750	2559	20½ lb.

Suffix letter "S" added to catalog number indicates for "slab" construction. Stakes and temporary cover are then included with each housing.



14" HEATER LENGTHS

L-1220

(R7-25) May 1957

Printed in U.S.A.

EDWIN L. WIEGAND COMPANY

7500 Thomas Boulevard

Pittsburgh 8, Pa.

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